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The effects of body positioning on compliance among children

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The Effects of Body Positioning on Compliance among Children

BY

Andrea Merideth Delaney

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Abstract

Noncompliance has significant implications for children in both home and educational settings. It can thwart learning and lead to increased levels of stress for parents. This study examined the effect of body positioning on the compliance rates of three children in the clinic setting. Results found that higher rates of compliance were experienced when caregivers issued commands in either the kneeling or bending positions rather than a standing position. For two of the three participants, a kneeling position yielded higher rates of compliance. No differences were seen pre- and post-intervention in regards to parenting style using the PAQ-R. Decreases in stress levels were experienced with one of the three mothers pre- and post-intervention when using the PSI-SF.

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Introduction

Compliance

Noncompliance in children is a major area of contention for both parents and teachers alike (Christophersen, 1990; Kalb & Loeber, 2002). Kalb and Loeber (2002) define noncompliance as instances when a child purposefully, either actively or passively, does not perform a behavior requested by a caregiver, teacher, or any other figure of authority. Noncompliance may also be a failure to follow previously stated rules in a classroom or household setting (McMahon & Forehand, 2005). When compliance to instructions falls below 40% in a classroom setting, the child's opportunities to learn may be significantly thwarted (Rhode, Jenson, & Reavis, 1995).

The behavioral display of noncompliance varies depending on a child's age, intellectual ability, physical ability, and/or situational opportunities. Noncompliance may present itself differently in a two year-old versus a fourteen year-old. Noncompliance may present itself as a child attempting, either passively or actively, to escape or avoid a command or engaging in behaviors such as whining, fighting, back-talking, or any other inappropriate behavior (McMahon & Forehand, 2005). According to Kuczynski & Kochanska (1990), there are four types of noncompliance indicative of the level of developmental sophistication in children: (a) direct defiance, (b) passive noncompliance, (c) simple refusal, and (d) negotiation. Negotiation is viewed as the most developmentally sophisticated strategy while direct defiance and passive noncompliance are the least developmentally sophisticated strategies (Kuczynski & Kochanska, 1990; McMahon & Forehand, 2005).

Half of the parents of non-referred 4- to 7-year-old children reported disobedience in the home to be an issue compared to 80-90% of parents of referred 4- to 7-year-old children (Achenbach & Edelbrock, 1981; McMahon & Forehand, 2005). Overall, there is a limited amount of normative data on rates of noncompliance in home and classroom settings; however, Forehand (1977) reported compliance rates of 60-80% to parental commands in a nonclinical sample of preschool aged children. There was a great deal of overlap between the nonclinical and clinical groups; therefore, he suggested that rates below 60% were considered clinically significant (Forehand, 1977; McMahon & Forehand, 2005).

Noncompliance during childhood can create tension in interactions with parents, teachers, child-care providers, and peers. Childhood noncompliance is viewed as a keystone behavior to continued and more problematic conduct problems in adolescence and adulthood. It was reported by Campbell (1995) that as high as 50% of children displaying conduct problem behaviors at 3-years and 4-years are at-risk for continuing on to more severe conduct problems into adolescence (McMahon & Forehand, 2005). Oppositional behavior at home may lead to disobedience in the school environment. Continued oppositional behavior may turn into aggressive behaviors (e.g., stealing at home, threatening, and/or attacking) and later delinquent behaviors (e.g., truancy, vandalism, setting fires, stealing, and/or drug/alcohol use) into adolescence (Edelbrock, 1985; McMahon & Forehand, 2005).

Noncompliance is currently associated with both aggression and antisocial behavior in childhood (Kalb & Loeber, 2002; Parrish, Cataldo, Kolko, Neef, & Egel, 1986; DeBlois & Stewart, 1980). Due to the potential life-long detrimental effects that

noncompliance can have on children, it is not surprising that there are several compliance training techniques, programs, and packages that have been developed to assist parents in increasing compliance rates in their children. Noncompliance is often viewed as a child's problem, but teaching both parents and teachers appropriate skills and techniques can improve behavior, often times quickly and relatively easily. Some of the evidence-based compliance training programs are Parent-Child Interaction Therapy (Eyberg, 1988), Helping the Noncompliant Child (Forehand & McMahon, 1981), and Compliance Training (Olmi, Sevier, & Nastasi, 1997).

Types of Compliance Training

Parent-child interaction therapy. Parent-Child Interaction Therapy (PCIT) is a type of compliance training program modified from the Hanf's two-stage operant conditioning model for modifying noncompliant behavior in children (Hanf, 1969). The first stage of Hanf's two-stage model consists of differential reinforcement explicitly taught to the caregivers (Hembree-Kigin & McNeil, 1995). Differential reinforcement refers to increasing positive/desirable behaviors using reinforcement while decreasing the negative/undesirable behaviors using extinction. In this model, differential reinforcement involves reinforcing desirable behaviors (e.g., playing appropriately, interacting, and responding in a play session) and ignoring all negative behaviors exhibited by the child as long as the behaviors are not dangerous. In the second stage, parents learn how to effectively discipline their child. Caregivers are trained to provide clear directions, to use praise consistently as a reinforcer for compliance, and to use time-out (TO) with noncompliance issues (Hembree-Kigin & McNeil, 1995).

PCIT was developed by Eyberg (1988) in order to treat disruptive behavior disorders in children. PCIT focuses on improving the dyadic relationship between the parent and the child. According to Hembree-Kigin and McNeil (1995), PCIT is effective with caregivers due to the immediate feedback received from the therapist through the direct coaching component used throughout the course of the sessions. One unique aspect of PCIT is the use of a "bug in the ear" device to provide direct feedback. Similar to Hanf's model, PCIT includes two stages. The first stage, known as Child Directed Interaction (CDI), of treatment focuses on allowing the child to direct the interactions through leading play activities. Parents are taught skills in order to effectively use differential reinforcement (Eyberg, 1988; Hembree-Kigin & McNeil, 1995). The following skills taught are referred to as PRIDE by the coach/therapist: (a) praising the child, (b) reflecting on the child's verbalizations, (c) imitating the child's play, (d) describing what the child is doing, and (e) using enthusiasm while interacting with the child. Parents are also taught not to use questions, commands, or criticize (Eyberg, 1988; Hembree-Kigin & McNeil, 1995).

The second stage, Parent-Directed Interaction (PDI), is when the parent starts to apply discipline techniques. PRIDE techniques are continued during this stage, but parents lead the activity with verbal commands. PCIT describes how to administer instructions (direct, singular, etc.). Specific actions are implemented based on child compliance or noncompliance. If the child complies with a given command, labeled praise and attention are given (Eyberg, 1988; Hembree-Kigin & McNeil, 1995). In instances of noncompliance, the parents are instructed to first give a warning then follow through with a TO from reinforcement if a command is not carried out within 5 s. TO

typically last 3 mins during the PDI stage (Eyberg, 1988; Hembree-Kigin & McNeil, 1995).

Helping the noncompliant child. Helping the Noncompliant Child (HNC) is a compliance training program also adapted from Hanf's two-stage model and was created by Forehand and McMahon (1981). According to McMahon and Forehand (2005), HNC consists of two stages; Differential Attention (Phase I) and Compliance Training (Phase II). During Phase I, caregivers are trained to interact with the child by describing and attending to a child's appropriate behavior during the session. Parents are instructed not to use questions, commands, or instruction to guide a child's behavior. However, positive physical attention, specific verbal praise, and nonspecific verbal praise are to be given in order to increase positive behaviors in the children. All undesirable behaviors are to be ignored during this phase (McMahon & Forehand, 2005).

During Phase II, a clear instruction sequence is taught to the parents. Concise, direct, and clear instructions should be issued after first attaining the child's attention, then by stating the instruction and allowing the child 5 s to comply. Vague and general questions such as, "Would you pick up your toys?" are avoided. If the child complies, positive attention and praise should be given immediately. However, if the child does not comply, the parent is to give a warning first by repeating the instructions and stating the consequence for noncompliance, such as, "You will go to time out." Parents wait an additional 5 s in order to allow the child time to comply. If a child complies, they are given positive attention and praise. If the child does not comply, a brief TO procedure is administered by placing the child in a chair that faces towards the wall. The TO procedure lasts 3 min and the child needs to remain quiet during the last 15 s prior to

being released from TO. After successful completion of the TO, the child is expected to return to the task which elicited the noncompliance and the parent is to give the exact instructions again. Anytime a child complies with instructions, positive attention and praise should be issued (McMahon & Forehand, 2005).

Compliance training. Another type of child compliance training typically includes four components: (a) time-in (TI), (b) effective instruction delivery (EID), (c) contingent praise (CP) and (d) TO (Benoit, Edwards, Olmi, Wilczynski, & Mandal, 2001; Ford, Olmi, Edwards, & Tingstrom, 2001; Olmi et al., 1997). TI and EID are considered antecedent procedures in order to increase the future probability of future compliance. TI is a type of non-contingent reinforcement procedure in which positive praise in the form of verbal praise, smile, and/or appropriate physical contact is given based on any appropriate behaviors exhibited by the child (Roberts, Tingstrom, Olmi, & Bellipanni, 2008; Marlow, Tingstrom, Olmi, & Edwards, 1997). TI, depending on its use, can be considered a consequence for general appropriate behaviors, an antecedent, or a discriminative stimulus for compliance (Ford et al., 2001).

Guidelines for EID can vary slightly depending on the study, but the following are the main components associated with EID: (a) eye contact, (b) command given as a directive statement, (c) close proximity to the child (within 3-5 feet of the child), (d) descriptive wording when issuing a command, and (e) a 5 s wait for a response or nonresponse to occur (Benoit et al., 2001; Mandal, Olmi, Edwards, Tingstrom, & Benoit, 2000; Roberts et al., 2008).

TO and CP are both considered types of consequent responses to compliance/noncompliance in children. CP is positive praise in the form of verbal or

appropriate physical contact that is contingent on compliance to a given command. TO, on the other hand, is the removal of a child from an environment in which he/she finds reinforcing for a set period of time contingent on compliance (Benoit et al., 2001; Mandal et al., 2000; Roberts et al., 2008).

PCIT, HNC, and Compliance Training all attempt to increase desirable behaviors and to decrease undesirable behaviors in children using differential reinforcement. PCIT focuses more on the interactions between the parent and the child. Specifically, reflecting on the child's verbalizations, describing what the child is doing, and imitating the child's play are emphasized in PCIT. In HNC, the first phase focuses on all the child's appropriate behaviors encountered during the session. Similarly, Compliance Training has a component, TI, which focuses on appropriate behaviors exhibited by the child. Both HNC and Compliance Training recommend praising a child through various methods (specific verbal praise, nonspecific verbal praise, or physical praise); however, PCIT emphasizes labeled and unlabeled praises specifically rather than physical touch.

All three compliance programs also have a discipline component. Both PCIT and HNC require the caregiver to issue a warning first. If the child does not comply, he/she is sent to TO for 3 mins. After time has lapsed, the child must remain quiet for 15 additional seconds in HNC and 5 s in PCIT before the original command is issued again. The process repeats until the child complies with the command. However, TO in Compliance Training is dependent on when the child has quiet hands, feet, and mouth. Once the child is quiet, he/she is only in TO for another 3-5 s.

Both PCIT and HNC suggest that the child's attention is obtained before issuing a command. However, Compliance Training specifically requires that eye contact is

established before the command can be given. In addition, PCIT can be time intensive in a clinical setting as it requires parents to meet a stringent mastery criteria in the CDI stage before moving on to subsequent stage (15 praises, 25 descriptions/reflections, 0 criticisms, questions, or instructions in a 5 min observation) .

A variation of Compliance Training will be the procedure used during the current study because of its flexibility, adaptability, and ease of use in a clinical setting. Previous research has used Compliance Training and EID components; thus, the current study wishes to expand upon the literature.

Components of Compliance Training

Contingency strategies. The application or removal of reinforcement contingent on behavior. The two strategies that will be discussed further are contingent praise and time-out.

Contingent praise. CP is a form of praise (verbal or physical contact) which is contingent on whether the child complies with the commands issued. CP has resulted in increases of compliance in both clinic and classroom settings (Benoit et al., 2001; Ford et al., 2001; Mandal et al., 2000; Marlow et. al., 1997; Olmi et. al., 1997; Roberts et al., 2008).

CP is an important part of all compliance training programs. Roberts et al., (2008) examined the effects of positive antecedent components (EID and TI) and consequence components (CP) on the compliance rates of four male children in a clinic setting using a multiple baseline across subjects design.

Baseline compliance rates for the participants were 33%, 19%, and 19% for Jacob, Brady, and Cory respectively (Roberts et al., 2008). One participant, Scott

switched caregivers during baseline; however, rates did not vary a great deal and were 30% and 32% for both caregivers. When the component, EID, was included compliance rates rose to 83%, 68%, 73%, and 65% for Jacob, Scott, Brady, and Cory respectively. When CP was added to EID, compliance increased to 93% for Jacob and 83% for Scott. In the final trial, all three components EID/CP/TI were included together. Jacob slightly decreased in compliance to 90% (although, his mother withdrew after only one session due to satisfaction with Jacobs's compliance levels) and Scott further increased to 92% compliance.

Brady and Cory received EID/TI (instead of EID/CP) and compliance increased to 78% and 72% respectively (Roberts et al., 2008). When all components were used in conjunction (EID/TI/CP), compliance rates increased to 83% and 86% for Brady and Cory respectively. Brady and Cory were the only two participants in which compliance rates were available at a 1-month follow-up. Mean compliance decreased to 75% for both participants. Higher rates of compliance were seen when EID/CP was used versus EID/TI. However, compliance rates increased for three of the four participants when all three components were used in combination (Roberts et al., 2008). This study shows the impact that CP has on compliance as well as using CP in conjunction with other components.

Time-out. The procedures of TO can be implemented differently based on the particular requirements of a specific model. Olmi, Sevier, and Nastasi (1997) provide a list of procedural guidelines for appropriate implementation of TO. Once a command is directed to a child, the child has 5 s to begin initiation of the task. If initiation of the task does not occur, the child is placed 2-3 ft away from the activity (i.e., non-exclusionary

TO) using little physical guidance; however, a verbal prompt of, "You did not follow my instruction, time-out" is given if necessary. No visual, verbal, or physical attention is given to the child when he/she is in TO. Once the child has quiet hands, mouth, and feet, wait 3-5 s. Once the 3-5 second period has passed, the child is instructed, "You are quiet, get out of time-out" and the child is instructed to complete the original command. If the child complies, verbal and/or physical praise is given. If the child does not comply, the TO procedure starts again using the same guidelines (Olmi et al., 1997).

It has consistently been shown that TO is most effective when conducted after implementation of TI (Marlow et al., 1997; Ford, et al., 2001; Olmi et al., 1997). Marlow et al. (1997) examined a multiple baseline design in which TI was initiated first, then TI and TO were used in conjunction in the following condition. In the TI condition, compliance rates increased 45%, 33%, and 29% in all three participants from their baseline rates. During the TI/TO condition, compliance rates increased another 25%, 10%, and 27%, respectively, in participants from the rates seen in the TI only phase. Compliance rates remained consistent, around 96%, during the one-month follow-up for two of the three participants. These findings are consistent with similar research, which suggests that TI is a major determinant on the effectiveness of TO procedures (Marlow et al., 1997; Ford, et al., 2001; Olmi et al., 1997).

Antecedent strategies. These strategies are to provide an environment that set the occasion in which the desired behaviors are to be displayed and to decrease undesirable behaviors. The behavioral principles used are establishing operations (TI; increase the potency of a reinforcer), and discriminative stimuli (EID; behavior is displayed under certain stimuli).

Time-in. TI is a procedure in which all appropriate behaviors are reinforced through verbal or physical praise. Benoit et al., (2001) examined the use of EID and combination EID/TI in both the clinic and home setting while using a multiple baseline across subjects design. In the clinic, one participant's compliance rate increased from 30% to 80% when EID was used. When EID/TI was used in conjunction, compliance increased to 90%. When examined in the home, compliance rates increased from 30% to 60% (EID only) and finally to 70-80% when both procedures were used. For the second participant, rates increased from 20% to 70% (EID only) and further increased to 90% (EID/TI) in the clinic setting. When viewed in the home environment, compliance increased from a baseline of 30% to 60% with EID and further increased to 70% when EID/TI were both used. The experiment was conducted to examine the generalizability of child compliance from the clinic setting to the home setting for these two children (Benoit et al., 2001). A third participant dropped out due to parental satisfaction with compliance rates in the clinical setting after the first phase. This experiment showed that TI in conjunction with EID increased compliance rates for these participants in both the clinic and home setting (Benoit et al., 2001).

Effective instruction delivery.

Type of instruction. The manner in which a parent, teacher, or caregiver gives commands to a child is a very important factor in whether a child follows through with the command. Beta commands are directions that are ambiguous or too complex in nature. McMahon and Forehand (2005) describe five different types of beta commands; (a) chain commands, (b) vague commands, (c) question commands, (d) "Let's..." commands, (e) commands followed by a rationale or other verbalization.

Chain commands are a series of directions strung together in a sequence. The directions may involve related or completely unrelated tasks. Depending on the child's age, cognitive ability, and number of commands, chain commands thrusts too much information upon the child at one time (e.g., make your bed, pick up the toys off the ground, and then do the dishes"). Vague commands given by the parent do not specify concrete, observable behaviors to be performed by the child (e.g., be good, watch out, be careful). Children may or may not understand what the parent is referring to specifically when the command is vague (McMahon & Forehand, 2005). Question commands imply the child has an option to respond "yes" or "no" (e.g., do you want to brush your teeth?). Unless the child has a choice or "no" is an acceptable answer, phrasing the commands in question format is inappropriate. "Let's..." commands are commands in which the parent suggests an activity such as, "Let's do the dishes." This is an appropriate command if the parent intends to help, but can become problematic if the parent does not intend to assist the child. Lastly, providing rationale for the command after the command has been issued can become challenging. Children view asking, "Why?" as a game and it can reinforce avoidance behavior. If a rationale is required, it would be best practice for a parent to give the rationale before issuing the command (McMahon & Forehand, 2005).

Rather than giving beta commands, parents are encouraged to give alpha commands during Compliance Training. Alpha commands are considered direct and concise commands provided to the child in order to achieve the desired outcome. McMahon and Forehand (2005) suggested three steps in order to achieve clear instruction delivery to the child. First, the parent should have the child's attention. Children will often plead ignorance or simply may not hear the command. In order to combat either of

these issues, it is recommended that a parent has the child's attention before giving any command. In order to get the child's attention, it is recommended that the parent is in close proximity, says the child's name, and establishes eye contact (McMahon & Forehand, 2005).

Second, in order to achieve better compliance rates, the instructions need to be stated in a clear neutral tone. Instructions should be given one at a time so that the child does not become overwhelmed. The instruction should be given in a firm, but calm, voice at a slightly louder level than normal. "Do" commands (e.g., pick up the animals off your bedroom floor, give me the red toy car, write your name on the paper) should be administered over "don't" commands (e.g., don't make a mess with your food, don't get out of your seat, don't yell at your sister, don't run). Commands phrased in a "do" manner provide the child with clear expectations of their behaviors in a positive manner. Directives should be given in a concise manner using vocabulary that the child can easily understand. Gesturing can also provide the child with clear guidelines (e.g., pointing to the appropriate drawer in which the clean clothes should be placed) (McMahon & Forehand, 2005).

5 second wait. Finally, a child should be given 5 s to initiate a command before the command is repeated (McMahon & Forehand, 2005). Additional commands and all verbalizations should cease during the 5 s time frame. Wruble, Sheeber, Sorenson, Boggs, and Eyberg (1991) performed a study with non-referred preschool students ages three to five. They found that for this age range, most children initiated compliance within 1.5 s; however, 85% of the time, the children complied within 5.4 s of the initial command. With this information, 5 s has been established as the appropriate amount of

time for a parent to wait for their child to begin initiation of a command (Wruble et al., 1991).

Descriptive wording. Not only are clear instructions necessary in order to achieve better compliance with children, but the level of descriptive wording in commands is also important. Instructions should be given with a level of description in which there is little ambiguity and children know exactly what should be done (e.g., please put that red truck in the brown toy chest at the end of your bed, hand me the blue toy car).

Eye contact. Eye contact is considered a component in EID due to the assumption that if eye contact is established, there is an increased likelihood that the child is paying attention. Everett, Omi, Edwards, and Tingstorm (2005) examined the effects of demanded eye contact and CP in Compliance Training in children. A non-concurrent multiple baseline across subjects design was used with two participants while a concurrent multiple baseline across subjects design was implemented for the remaining two participants. From baseline to the instruction only phase, four participants increased from: 32% to 43%, 33% to 48%, 34% to 51%, and 28% to 51% compliance respectively. When eye contact was added in conjunction with instructions, compliance rates increased to 65%, 60%, 63%, and 66% respectively in each participant. The last phase included instruction/eye contact/CP. When all three components were used, compliance increased to 85%, 68%, 73%, and 81% respectively in participants. Compliance rates steadily increased across conditions (Everett et al., 2005).

Requiring eye contact increases the number of commands given to a child. The parent may be required to give a command such as, "look at me" in order to establish eye contact with their child. However, parents often have a hard time establishing direct eye

contact with some children who may be noncompliant. For example, the child may refuse to look at a parent and intentionally close their eyes tightly. Everett et al., (2005) had parents move on to the next prompt if eye contact could not be established. However, by requiring eye contact, the sessions can be significantly lengthened because "Look at me," is a command in addition to the original command. Eye contact also produces a more demanding situation/condition than other studies.

There is little consistency across the three compliance training programs on whether eye contact is necessary. Neither HNC nor PCIT require eye contact as a precursor to giving instructions, but Compliance Training does. HNC specifically states that the child's attention should be obtained prior to stating the command, but it does not focus on eye contact. More research needs to be conducted to determine whether adding eye contact significantly increases compliance rates to justify the additional effort.

Proximity of instruction delivery. Proximity of instruction delivery is considered an important factor in order to establish a degree of closeness with the child. In play sessions, most securely attached children will play within a 2-3 ft radius of their caregiver (Hembree-Kigin & McNeil, 1995). That radius permits the caregiver to easily give appropriate verbal praise and physical touches to the child (Hembree-Kigin & McNeil, 1995). Close proximity also allows for increased assurance that the child can hear the instructions being directed towards them. Not only should the parent be within 3 ft of the child, they should also be facing in the general direction of the child so that child knows they are being spoken to directly. Overall, there is a general lack of research on why 3 feet has became the standard for proximity.

Body positioning. Many components of Compliance Training have been examined in order to find out which components are most effective in achieving the highest rates of compliance. However, body positioning has not been thoroughly examined to determine its importance in Compliance Training.

Hudson and Blane (1985) conducted a study to examine the importance of nonverbal behaviors exhibited by the parents while issuing instructions to their children. Specifically, distance from the child, body orientation of the mother, eye contact between the mother and child, tone of voice, and mother's orientation toward related objects were examined. The subjects were 16 pairs of mothers and children; eight children had been clinically referred for noncompliance and eight were non-referred. Following a procedure outlined by Forehand and McMahon (1981), the parents were instructed to spend the first half of the session engaged in child directed play while the second half was to be mother directed. During the mother directed interaction, specified activities were set up for a structured play environment. The researchers recorded all sessions and coded the behaviors observed.

Hudson and Blane (1985) found that the referred parents administered nearly twice the number of commands as non-referred parents and compliance rates of 32% were observed for the clinical children and 69% of the nonclinical children. Chi-square analyses, which only indicate a correlation between two variables rather than causation, found a relationship between the nonverbal components observed during successful and unsuccessful commands. Higher levels of compliance were attained when the mother issued commands within close proximity, established eye contact, used a pleasant tone of voice, oriented her body towards the specific object, and issued the commands in a

kneeling or squatting position. It is impossible to infer causation. It may be that some or all of the nonverbal behaviors lead to increased compliance; however, it is also possible that parents engage in certain nonverbal behaviors if compliance is anticipated (Hudson & Blane, 1985).

This was the first study of its kind to examine what nonverbal behaviors are associated with increased compliance; specifically body positioning; however, there were several limitations within the study. First, initiated compliance was loosely defined as "initiating the required activity within ten seconds of being asked" (Hudson & Blane, 1985). What classified a movement as initiation was ambiguous. No support or justification was given as to why 10 s was the standard used for initiation. The other variables were not clearly operationalized or defined. In addition, interobserver agreement was only calculated for 25% of the sessions, which was lower than the 33% standard.

An unpublished manuscript by Hindman and Johnson-Gros (2010) sought to expand upon the Hudson & Blane study (1985) and further examine the relationship between compliance and the nonverbal behavior of body positioning. The researchers used the Compliance Training model and modified the body positions in which the parent, teacher, and teacher aide interacted with one child. Compliance, the dependent variable, was defined as when a child initiated or completed the caregiver's task or command within 5 s of issuing the command.

The main independent variable was body positioning. Standing, bending over, and sitting were the three most prominent stances chosen for examination in this study. Standing was defined as a caregiver issuing a command in an upright position. Sitting

was defined as the caregiver having their buttocks on the chair while keeping their knees bent at a 90-degree angle when issuing a command. Bending over was defined as a caregiver forming a 90-degree angle with their waist while issuing a command to a child. In addition, the components of Compliance Training were used: (a) command given as a directive, (b) close proximity, (c) descriptive wording, (d) 5 s wait, (e) praise for compliance, (f) verbal/physical praise during the time-in environment (Hindman & Johnson-Gros, 2010).

Hindman and Johnson-Gros (2010) used a multiple baseline design across caregivers that moved into an Alternating Treatment Design for the treatment phases. The final phase concluded with the best treatment in an individual verification phase. Baseline data were collected in all trials until a stable or downward trend appeared in the data. When commands were issued by the teacher, the baseline of 44% increased to 60% when standing, 68% when sitting, and 70% when bending over. Compliance rates increased to 80% with the teacher when bending over was used in the verification stage. When commands were issued by the teacher aide, the baseline of 43% increased to 63% when standing, 60% when sitting, and 70% when bending over. Bending over was used in the verification stage due to clear divergence from the other two conditions and compliance rates increased to 78%.

The mother had the highest initial compliance rate of 58%. When commands were issued in a standing position, compliance increased to 72%. When the parent was sitting, compliance was 78% and when bending over, compliance was at 70%. For the parent, compliance was highest in the sitting position, which was used in the verification

stage due to clear divergence. Compliance rates then held consistent at 78% (Hindman & Johnson-Gros, 2010).

This study showed that compliance increased more, overall, when commands were issued in a bending over position. It was hypothesized that bending over is interpreted as a less aggressive stance which could indicate why some children respond more appropriately to commands issued in this fashion; however, more research is needed to expand on body positioning in order to replicate findings.

The Hindman and Johnson-Gros (2010) study had several limitations. Treatment integrity became an issue as all personnel had difficulty implementing CP and TI components. During both the treatment and independent verification phases, treatment integrity for CP ranged from 23% to 56% and from 0% to 15% for TI components. Both CP and TI are a significant part of Compliance Training protocol. These ranges are well below the 85% standard. Due to lack of integrity on these issues, it is unclear if the effects of body positioning would have looked differently had been more integrity with all components.

In future research, increased training of caregivers may be beneficial in order to achieve higher levels of treatment integrity. Conversely, researchers could eliminate one or both of the components as to control for extraneous variability with variable integrity. In addition, the definition of compliance was very broadly defined as either initiating or completing a command within 5 s. The current study intends to better operationalize the definition of compliance and provide more control in a clinic setting. However, this study was one of the first to examine the way caregivers' body positioning may influence

compliance. In addition, the authors hypothesized that body stances may be reflective of different parenting or caregiver styles.

Parenting Styles

Three types of parenting styles have emerged over the course of scientific research, specifically from Baumrind (1967). Authoritarian, Authoritative, and Permissive parenting styles are the three main styles displayed by parents. Baumrind (1971) defined Authoritarian parents as high in control and maturity demands, but low in both responsiveness and communication. Authoritative parents are high in control, responsiveness, communication, and maturity demands. Permissive parents are low in control and maturity demands, but are high in communication and responsiveness (Baumrind, 1971).

Steinberg, Lamborn, Dornbusch, and Darling (1992) examined Authoritative parenting styles, parental involvement in schooling, and parental encouragement to succeed in school and their impact on academic achievement in adolescents. Approximately 6,400 students 14-18 years old participated in this study. Students rated their parents' general child rearing practices and achievement-specific socialization behaviors. Later, students rated their school performance and level of school engagement. Results indicated that Authoritative parenting had a significant relation to school performance and engagement of adolescents in high school; however, the impact of parenting style on academic achievement was found to be mediated by the positive effect of Authoritativeness on parental involvement in school. Parental involvement is more likely to strengthen school success in adolescence when it occurs in the Authoritative home environment. Authoritative parenting styles are superior in terms of

fostering academic achievement and social adjustment (Baumrind, 1991; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Reitman & Gross, 1997; Steinberg et al., 1992). The researchers believed that parenting styles would remain stable across short periods of time and, therefore, only surveyed the students once.

Woolfson and Grant (2006) examined the effect of Authoritative parenting and parental stress in both pre-school (3-5 years of age) and older children (9-11 years of age) by comparing parents of children with developmental disabilities and typically developing children. They found that parents with younger children with developmental disabilities use an Authoritative parenting style more than parents of older children with developmental disabilities. However, parents with older, typically developing children were more Authoritative in their parenting approaches than parents with younger typically developing children. As expected, parents of children with developmental disabilities reported higher levels of stress, based on scores from the Parenting Stress Index-SF, than parents with typically developing children (Woolfson & Grant, 2006).

Parenting Stress

Parenting stress can be associated with a variety of negative outcomes including parental depression, marital conflict, poorer physical health, less effective parenting, and increased child behavior problems (Neece & Baker, 2008). In addition, parental stress has been associated with less positive interactions between parents and children, a greater conflict between family members, and increased likelihood of child maltreatment (Whiteside-Mansell, Ayoub, McKelvey, Faldowski, Hart, & Shears, 2007).

Baker, Blacher, Crnic, and Edelbrock (2002) examined the effect behavioral problems had on levels of parental stress in families with children three years-old with

and without developmental delays. They reported that both mothers and fathers of preschool children with developmental delays reported a greater negative impact of the child's delay on the level of stress on the family unit and financial stress. Behavioral problems of children, with and without delays, contributed to greater levels of stress in parents than the level of cognitive functioning (Baker et al., 2002). It was suggested that some of the parental stress assessment items focus on the limitations of children; therefore, stress levels in parents of children with developmental delays increases as the severity of a child's developmental delay increases (Baker et al., 2002).

Ware, McNeil, Masse, and Stevens (2008), in addition to examining the efficacy of in-home Parent-Child Interaction Therapy, used the Parenting Stress Index-SF (PSI-SF) to determine the degree of parental distress experienced. All five sets of parents reported significant levels for distress on at least one of the three domains: Parental Distress, Difficult Child, and Parent-Child Dysfunctional Interaction. Two of the five parents reported significant PSI-SF scores in the Parent Domain. The Parent Doman measures the level of parental distress experienced in his/her role as parent. The authors suggested that the additional personal stressors might have impeded the parent's successful implementation of PCIT skills (Ware et al., 2008).

In summary, noncompliance in children is a problem for parents and teachers alike (Christophersen, 1990; Kalb & Loeber, 2002; Rhode et al., 1995). Noncompliance in childhood can lead to significant levels of stress in interactions between children and their parents, teachers, and peers. Parenting stress can lead to numerous negative consequences for parents (Baker et al., 2001; Neece & Baker, 2008). In addition, a parent's parenting style not only has implications for a child's academic well-being and

future social adjustments (Baumrind, 1991; Dornbusch et al., 1987; Reitman & Gross, 1997; Steinberg et al., 1992), but also on the level of parental stresses (Woolfson & Grant, 2006). Previous studies on Compliance Training have not examined whether a parent's parenting style changes as their knowledge of managing noncompliance increases. The current study explored if a parent's parenting style changed over the duration of the study. Noncompliance, parenting stress, and parenting styles were the focus in the current study due to their universal application for families.

Hypotheses

The main purpose of the current study was to expand upon previous research and explore which body position, standing, bending, or kneeling, produced the highest level of compliance among children. It was hypothesized, based on previous research, that bending or kneeling would yield the highest rates of compliance. Additionally, it was hypothesized that EID would significantly increase the overall rates of compliance in all children.

This study also explored how parenting styles and parenting stress levels change over time. It was hypothesized that, over time, Permissive (low in control and maturity demands, high in communication and responsiveness) or Authoritarian (high in control and maturity demands, low in responsiveness and communication) parents would move toward a more Authoritative (high in control, responsiveness, communication, and maturity demands) parenting style from pre-treatment to post-treatment over the course of the study. Another hypothesis was that parents would experience decreased levels of stress as their child increased their rate of compliance.

Method

Participants

The participants in this study were three children between the ages of four and five, at the start of study, who were referred for services by their parents for noncompliance. In order to be included, children had to display mean initiations compliance levels to first time presented commands at or below 40% (Benoit et al., 2001; Everett et al., 2005; Rhode et al., 1995; Roberts et al., 2008) during baseline data collection. Aspen and Laney, 4 year-old and 5 year-old females, respectively, and Landon, a 5-year-old male, were selected as participants in the study; all three participant were Caucasian. None of the participants had histories of disabilities (e.g., hearing impairments, visual impairments, motor impairments, autism, or mental retardation), medical diagnoses, or history of major aggression.

The primary caregivers for all participants were the children's biological mothers, all of whom were married. Aspen's mother was a 30 year-old stay at home mom with two other children, ages one and six. Laney's mother was a 33 year-old stay at home mom with two additional children living in the home, ages twelve and seven. Landon's mother was 37 years-old and worked outside of the home in retail. Landon had two younger brothers, ages four and one, and an older sister, 20, who did not live in the household. Participants were recruited from preschool and kindergarten classrooms in a rural, Midwest community using a recruitment letter developed by the experimenter (Appendix A). Informed consent was obtained from all participants' parents prior to initiation of the study (Appendix B).

Setting

Parent training, observer training, and compliance training sessions were conducted in the School Psychology University Clinic. The clinic was furnished with two couches, three tables, and two chairs, as well as age appropriate toys, activities, and games. Age appropriate games included race cars, teddy bears, various puzzles, Legos, Veterinarian kit, MagnaDoodle, and drawing paper to color or write. In addition, the clinic had a two-way mirror and closed circuit television system. Both were utilized to monitor and record parent and child interactions within the clinic.

Materials

Observation form. An observation form (Appendix C) was developed in order to assess integrity of all EID components as well as the body positioning (standing, bending over, and kneeling) of the caregiver. These observation forms measured the dependent variables as well as assess treatment integrity and interobserver agreement (IOA) during each session. During all phases, a maximum of thirteen adult behaviors and two child behaviors were coded. Trained observers reviewed all recordings at least once following each sessions.

Parental Authority Questionnaire-Revised. The PAQ-R (Reitman, Rhode, Hupp, & Altobello, 2002) consists of 30 items, with ten items from each of the three parenting styles; Authoritative, Authoritarian, and Permissive. A 5-point Likert-type Scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) is used to rate items. Subscale scores for items on the PAQ-R range from 10 to 50. Higher scores indicate a greater appraised level of the parental authority prototype. The PAQ-R is intended for use in children ages 3-8 years of age. It was modified from the original version (PAQ;

Buri, 1991) to be used as a parent report rather than a retrospective student report and in order to increase overall readability levels (Reitman et al., 2002).

According to a study by Reitman et al., (2002) internal consistency reliability coefficients for the Authoritarian and Permissive scales ranged from .72 to .76 across all samples. Authoritative scales, on the other hand, yielded internal consistency coefficients of .77 in the predominately Caucasian, higher socioeconomic status (SES) sample, but only .56 and .66 in Sample B and Sample C (predominantly lower SES and African American in composition) respectively. Test-retest reliability was assessed one month following for Sample A ($n = 22$), which yielded reliability coefficients of .61 for Authoritative, .87 for Authoritarian, and .67 for Permissive subscales. One-month test-retest reliability from Sample C ($n = 40$) yielded reliability coefficients of .54 for Authoritative, .88 for Authoritarian, and .74 for Permissive subscales (Reitman et al., 2002). Modest reliability was found on the Authoritarian and Permissive subscales; however, reliability of the Authoritative subscale was poor, especially in lower SES and African American subscales).

In terms of convergent validity, the PAQ-R was compared with subscales of both the Parenting Scale (PS) subscales (Laxness and Overreactivity) and Parent-Child Relationship Inventory (PCRI) subscales (Communication and Limit Setting). Authoritative parenting style from the PAQ-R was correlated with the Communication subscale ($r = .34$). Authoritarian parenting style correlated with the Overreactivity subscale ($r = .24$); however, contrary to predictions, it also correlated with Communication subscale ($r = .24$). Lastly, Permissive parenting style was correlated with Laxness ($r = .26$) and Limit Setting ($r = -.30$) as expected, but also Overreactivity

(r = .27) (Reitman et al., 2002). Convergent validity was found to be low, overall. Limit setting was not correlated with Authoritarian or Authoritative subscales as would be predicted based on Baumrind's parenting styles.

Overall, the psychometric data suggests that the factor structure of the PAQ-R is influenced significantly by variables such as SES and ethnicity. The three subscales did not correlate well with the factors they were purported to measure; however, despite the poor psychometrics, the current study was interested in exploring parenting styles.

Parenting Stress Index-Short Form. The PSI-SF (Abidin, 1995) is a 36-item parent self-report derived from the original 120-item full scale PSI. The PSI-SF was developed due to the need of a brief assessment of parenting stress. The PSI-SF contains three subscales: Parental Distress (PD), Difficult Child (DC), and Parent-Child Dysfunctional Interaction (P-CDI). The Parental Distress domain assesses sources of stress and potential dysfunction in the parent (e.g., "I often have the feeling I cannot handle things very well"). High scores indicate feelings of being overwhelmed and/or inadequate in parenting tasks. The Parent–Child Dysfunctional Interaction domain examines the perception that the child does not meet the parent's expectations and that the interactions with his/her child are not reinforcing (e.g., "My child is not able to do as much as I expected."). The Difficult Child Domain examines the behavioral characteristics that assess the difficulty or ease of managing the child (e.g., "My child gets upset easily over the smallest thing."). Each subscale consists of 12 items rated on a 5- point Likert-type Scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Subscale scores range from 36 to 180. Greater levels of stress are indicated through higher scores on the subscales and PSI-SF total score (Abidin, 1995).

In addition, a Defensive Responding scale was also developed taking into account a parent's response from items on the PD domain. A score of 10 or less on the Defensive Responding subscale may mean several things; that a parent is trying to appear component and stress-free, the parent is not invested in the parenting role and therefore is not experiencing typical stressors, or the parent is competent and is handling the stressors well (Abidin, 1995).

Test-retest reliability coefficients for PSI-SF scores yielded the following results: Total Stress (.84), Parental Distress (.85), Parent-Child Dysfunctional Interaction (.68), Difficult Child (.78). Internal reliability coefficients were assessed using Cronbach's alpha with the following results: Total Stress (.91), Parental Distress (.87), Parent-Child Dysfunctional Interaction (.80), and Difficult Child (.85) (Abidin, 1995).

The PSI-SF was found to correlate with the Full-Length form of the PSI: Total Stress SF with Total Stress (r = .94), PD on PSI-SF and Parent Domain (r =.92), DC on PSI-SF with the Child Domain (r = .87). The P-CDI on the PSI-SF correlated with the Child Domain (r = .73) as well as the Parent Domain scores from Full-Length PSI (r = .50). The lower P-CDI correlations were expected as items from that domain originated from both the Child and Parent domain on the Full-Length PSI. The normative sample included 840 participants with a mean age of 43 months with relatively equal numbers of male and females. The children were 87% Caucasian, 10% African American, and 3% other (Abidin, 1995).

In order to determine if a change existed Pre- and Post-intervention for the current study, the Standard Error of the Difference (SED) was calculated based on the test-retest reliability coefficients. In order for there to be a significant change, $p < .05$, the Total

Stress score needed to decrease by at least 14.46 points. In order to determine a change on the individual domains changes needed to be seen on Parental Distress of 5.09, Parent-Child Dysfunctional interaction of 7.20, and Difficult Child of 6.43.

Dependent Variables

Compliance. The major dependent variable in this study was the child's percentage of initiated compliance. Compliance was defined as an overt action taken by the child to initiate compliance with the caregiver's instructions within 5 s of the presentation of the command. An overt action was defined as taking a step in, turning towards, or reaching in the general direction of the task at-hand. The definition for initiated compliance was adapted from and expanded upon the definitions used in Hindman & Johnson-Gros (2010). Percentage of initiated compliance was calculated by dividing the number of times the child initiated compliance with an instruction divided by the ten instructions presented in a given session and multiplied by 100.

Completed compliance was the successful completion of an instruction, task, or command. Percentage of completed compliance was calculated by dividing the number of times the child completed compliance with an instruction divided by the ten instructions presented in a given session and multiplied by 100. In most compliance research, examiner's look at one variable or another without justification as to why. Just to examine if there was a difference, the experimenters in the current study decided to calculate both variables; however, in accordance with most of the literature, initiated compliance was the main dependent variable.

PAQ-R. The PAQ-R was scored by summing the scores for each of the three subscales. The Authoritarian scale included items 2, 3, 7, 9, 12, 16, 18, 25, 26, and 29.

The Authoritative scale included items 4, 5, 8, 11, 15, 20, 22, 23, 27, and 30. The Permissive scale used items 1, 6, 10, 13, 14, 17, 19, 21, 24, and 28. Higher scores on each subscale indicated an emphasis towards that parenting style. Lower scores suggested the parenting style is not reflective of that subscale.

PSI-SF. The PSI-SF was scored by summing the 12 items from each of the three domains: PD, DC, and P-CDI. A Total Stress score was derived from summing the three domain scores.

Independent Variables

Body positioning. The main independent variable in this study was the different body positions exhibited by the caregiver while issuing a command: (a) standing, (b) bending over, and (c) kneeling. Standing was defined as the caregiver being completely erect in a straight vertical position when issuing a command. Bending over was defined as the caregiver forming a 90-degree angle at the waist when issuing a command. Kneeling was defined as the caregiver placing one or both knees on the floor when issuing a command. The caregiver was asked to remain in the given body position for the entire duration of issuing the command.

Components of compliance training. Other independent variables were established to measure the various components of Compliance Training, which included the following: (a) command given as a directive statement (e.g., "Hand me the toy car") rather than questions (e.g., "Could you hand me the toy car?"), chain commands (e.g., "Put the chair under the table then hand me the car"), vague commands (e.g., "Hand me that"), or Let's commands (e.g., "Let's clean up"), (b) close proximity when issuing a command (within 3 feet of the child), (c) descriptive wording when giving a command

(e.g., "Please put that red truck in the blue container"), (d) at least a 5 s wait to initiate compliance, and (e) CP for compliance. Contingent praise based on compliance was defined as verbal, physical (e.g., high five, a hug, a pat on the back, etc.), or nonverbal praise (e.g., a thumbs up, a wink, or a smile) given to the child any time he/she complies with a command. Verbal praise may be labeled (e.g., "Thank you for handing me the blue car") or unlabeled (e.g., "Great job!", "Thank you!", or "Keep up the good work."). Observers will code the type of CP as well.

Procedures

There were three phases for the current study, which included a non-concurrent multiple baseline design across participants that moved into an Alternating Treatment Design (ATD) during the intervention phases. In order to ensure that participants met the inclusionary criteria of less than or equal to 40% compliance, both the caregiver and child were required to come to the clinic and the caregiver was asked to give a series of ten commands. If the child met the inclusionary criteria, these data were used as part of their baseline data. Baseline data were also collected on parenting stress and parenting style using the PSI-SF and PAQ-R, respectively, during the initial meeting. Baseline was extended until data were stable or there was a decreasing trend. Once baseline was established for a participant, caregiver training was conducted. After training, there was an intervention phase using an ATD with the three body positions and an independent verification phase ending with the most effective body position. Once these requirements were met, the intervention phase was initiated.

Baseline. Baseline was established by calculating the percentage of compliance for each child during the ten commands issued by their parent. Body position and each of

the five components of Compliance Training were recorded by trained observers. The intervention phase was implemented once the baseline data were stable or there was a decrease in trend for each participant. However, due to the non-concurrent multiple baseline design, the baseline and intervention phases for each participant were staggered accordingly.

Training. After baseline data were collected, training was conducted with the three caregivers, separately. During the training session, written instruction, didactic teaching, modeling, and performance feedback was used. Caregivers were trained on the definitions of the three body positions, standing, bending over, and kneeling, as well as the five components of Compliance Training: directive statement, close proximity, descriptive wording, waiting 5 s for initiation of command, and CP. Caregivers were trained through a didactic approach that included modeling of appropriate behaviors with the experimenter showing the components to the caregiver with the child present (Appendix D). After modeling, the experimenter left the room and monitored the caregiver from the closed-circuit television. Feedback on the caregiver's performance was provided using a bug-in-the-ear device. Training lasted one session, which was approximately 30-60 min long. If at any point during any session caregivers' integrity of the components fell below the 80%, they were retrained on that component until the desired level of compliance was attained. Re-training was accomplished through modeling and focused on the specific area needing improvement. A bug-in-the-ear device was utilized in order for parents and the examiner to communicate during each session.

Intervention phase. During the intervention phase, the caregivers were asked to issue a series of ten consecutive commands to the child during each of the three body position conditions. Commands were requested to be of equal response effort and difficulty and take less than 20 s to complete. After a command was issued, the child was given 5 s to comply or initiate compliance. If compliance was neither initiated nor completed, the parent was asked to move to the next command when appropriate. One command was asked to be issued approximately every minute. The experimenter communicated to the caregiver when one minute had elapsed through the bug-in-the-ear device. In order to control for order effects, the order of the conditions were counter-balanced based on the participant's previous session as well as the order administered for other participants. After ten consecutive commands were issued with the same body position, a brief break, either physically from the room or allowing the child to play without commands, occurred so that neither the child nor the parent felt overwhelmed.

Both the body positioning and the components of Compliance Training were coded/recorded on the observation sheet during all phases by trained observers. During all phases, a maximum of thirteen adult behaviors and two child behaviors were coded. In order to confirm that behaviors were coded correctly, trained observers reviewed all recordings at least once following each session. The observers recorded the compliance percentage for the child during each condition. In addition, caregivers' integrity of the six Compliance Training components were also recorded. The intervention phase was conducted until one condition showed clear divergence from the other two.

Independent verification. After the intervention phase, an independent verification phase was implemented using the condition that showed clear divergence.

The divergence represented that a condition yielded the highest rates of compliance. Effect size and percentage of non-overlapping data (PND) were calculated in order to confirm visual inspection of data.

Design and Data Analysis

A non-concurrent multiple baseline design across participants which moved into an ATD during the intervention phases was used in this study. A non-concurrent multiple baseline design allows an experimenter to apply different interventions to individuals at delayed intervals. This allows for flexibility with recruitment of participants and locations. In addition, a non-concurrent multiple baseline design controls for potential confounds including maturation, exposure to the clinical setting, test and retest sensitivity, and regression to the mean; all of which provide an increased confidence that any observable changes are based on the intervention (Harvey, May, & Kennedy, 2004; Watson & Workman, 1981).

An ATD allowed multiple interventions to be conducted during the same session; however, the order of the interventions were counter-balanced in order to control for order effects. During the intervention phase, the experimenter looked for a body position condition that showed divergence from the other two conditions and yielded the highest rates of compliance. The separation from the other two conditions insinuated that the condition was the most effective of the three conditions. The final phase of the study with an independent verification phase with the body position showed clear divergence during the ATD. The independent verification phase concluded when compliance was over 80%.

In order to assess the change from baseline to intervention, two forms of accepted non-regression effect size statistical calculations will be utilized: Standard Mean Difference (SMD) and Percentage of Non-Overlapping Data Points (PND; Olive & Smith, 2005). SMD is beneficial because it utilizes data from all data points, is easily calculated, and yields a Cohen's *d* value, which is more easily understood than values obtained from other effect size calculations (Olive & Smith, 2005). In order to calculate SMD, the baseline mean is subtracted from the treatment mean and divided by the standard deviation of the baseline. Cohen (1988) and most published literature consider effect sizes of 0.2 to be small, 0.5 medium, and 0.8 large.

PND is calculated by counting the number of data points that exceed the highest baseline data point, dividing that number by the total number of intervention data points, and multiplying that number by 100. The criteria for PND are: if below 50%, ineffective intervention effect; 50-70%, questionable intervention effect; 70-90%, effective intervention; and 90% and greater, very effective intervention effect (Olive & Smith, 2005; Scruggs & Mastropieri, 1998; Scruggs, Mastropieri, & Casto, 1987). The use of PND has been found valid for documenting the effectiveness of interventions in single subject research; however, it cannot be utilized when the highest baseline data point is 100% (Olive & Smith, 2005).

Treatment Integrity and IOA

An observation form was created and used to assess treatment integrity of caregivers during each phase. Treatment integrity was assessed during all intervention phases. All independent variables were assessed for treatment integrity. These included the three body position conditions as well as the five components of Compliance

Training. Treatment integrity was calculated by dividing the number of components checked by the observer on the observation form by the ten commands given and multiplying that value by 100. This was performed for each of the different components examined during each command.

Interobserver agreement (IOA) was collected by at least one independently trained observer of all independent and dependent variables. Observers were trained through the use of videos, modeling, and didactic methods. The observers were trained until they reached adequate levels of agreement on the practice videos. IOA was conducted in at least 33% of the total sessions for all caregivers. The same observation form used by the investigator was utilized by all observers. IOA was calculated by the number of agreements between the observer divided by the total number of agreements and disagreements of the observers multiplied by 100. Disagreements were defined as when one observer marked a behavior as occurring when the other did not.

IOA was measured during 42% of all sessions for Aspen, 36% for Landon, and 33% for Laney. The mean IOA for the five main components of compliance training was 94%, with a range of 60% to 100%. The mean IOA for initiated compliance was 94%, with a range of 70% to 100%. Completed compliance yielded IOA of 95% with a range of 70% to 100%.

IOA for each of the components was also tabulated and yielded 92% for directive statement (range = 70% to 100%), 93% for descriptive wording (range = 70% to 100%), 98% for proximity (range = 80% to 100%), 91% for 5 s wait (range = 60% to 100%), and 98% for CP (range = 90% to 100%). Each component of CP was also calculated for IOA: verbal 98% (range = 90% to 100%), labeled praise 97% (range = 80% to 100%),

unlabeled praise 97% (range = 80% to 100%), physical praise 99% (range = 80% to 100%) and gestural praise 99% (range = 90% to 100%). IOA for the three body positions was: 95% for standing (range = 70% to 100%), 97% for bending (range = 70% to 100%), 98% for kneeling (range = 90% to 100%).

Results

Compliance

Table 1 displays the mean percentages and ranges for initiated compliance for all three participants. Figures 1, 2, and 3 illustrate the percentage of initiated compliance when given commands across the different phases for Aspen, Laney, and Landon, respectively.

As illustrated in Figure 1 and Table 1, during baseline, mean initiated compliance was 33% for Aspen. During the intervention phase, Aspen's compliance increased to 50%, 52%, and 74% during standing, bending, and kneeling conditions, respectively. Table 8 displays effect sizes, PND, and the intervention effects. Effect sizes of 0.2 are considered small, 0.5 medium, and 0.8 large (Cohen, 1988). The criteria for PND are: if below 50% - ineffective intervention effect; 50-70%, questionable intervention effect; 70-90%, effective intervention; and 90% and greater, very effective intervention effect. The largest effect sizes and PND were seen during the kneeling condition, which suggested it was the most effective body position with Aspen. During the independent verification phase 87% compliance was attained as well as a large effect size and very effective PND.

As illustrated in Figure 2 and Table 1, baseline compliance for Landon was 43%. While compliance was slightly higher than the 40% inclusionary criteria, Landon's was included rather than extending the baseline further. During the intervention phase, compliance was 58%, 86%, and 74% during standing, bending, and kneeling, respectively. Effect sizes were the largest during the bending condition and considered a very effective intervention effect based on PND values. During the independent verification phase, compliance was 83%. The effect sizes and PND remained high.

As illustrated in Figure 3 and Table 1, initiated compliance during Laney's baseline was 40%. During the intervention phase, compliance rates drastically increased for all conditions. Compliance was 76% for both standing and bending conditions and increased to 92% during the kneeling condition. While effect sizes were large for all conditions and PND were considered very effective, kneeling yielded the highest percentage of compliance and therefore was used during independent verification. Compliance increased further to 97% during the independent verification phase.

Rates of completed compliance, which can be viewed on Table 2, were also examined for all participants. Completed compliance during baseline for Aspen was 18%. During the intervention phase, Aspen's completed compliance increased to 42%, 52%, and 52% during standing, bending, and kneeling, respectively. There was no clear divergence between the conditions. During the independent verification phase, kneeling, completed compliance increased to 90% which was slightly higher than initiated compliance. Landon completed only 21% of the commands issued during the baseline condition. During the intervention phase, Landon's completed compliance increased to 56%, 68%, and 68% during standing, bending, and kneeling, respectively. During the independent verification phase, bending, completed compliance increased 73%. Laney's initiated and completed compliance rates were the same during baseline at 40%. During the intervention phase, Laney's completed compliance increased to 86%, 80%, and 80% during standing, bending, and kneeling, respectively. Independent verification, the kneeling condition yielded completed compliance rates of 77%.

Treatment Integrity

Tables 3, 4, and 5 display the mean percentages and ranges for treatment integrity for Aspen, Landon, and Laney, respectively, across all phases. During baseline, the use of EID components was low across participants. Issuing commands as a directive statement was the lowest amongst participants and ranged from totals of 10% to 39% for the three participants. Contingent praise following compliance was the next lowest with rates of 36%, 27%, and 8% for the mothers of Aspen, Landon, and Laney, respectively. Using descriptive wording within a command ranged from 27% with Laney's mother to 56% and 57% with the other two mothers. Waiting at least 5 s between commands varied with percentages of 56%, 68%, and 70% for the mothers of Landon, Aspen, and Laney, respectively. All mothers issued commands within close proximity to their children during 80% or more of the commands.

During the intervention phase, all parents increased their use of EID components to over 84% for directive statements, descriptive wording, close proximity, and 5 s wait. The use of CP was more variable and fluctuated from 0% to 100%.

During independent verification, all parents further increased their use of the components. Aspen's mother had 90% or greater integrity across the five components. Landon's mother had 90% or greater integrity for all components other than CP, which was 81%. Laney's mother increased her use of the components to 97% or greater for all components other than contingent praise, which was 43%.

Contingent Praise

Table 9 shows the percentages of CP by participant and type. During baseline, 100% of Aspen's praise was verbal, 50% labeled. During intervention, 100% of the

praise issued by Aspen's mother was verbal; 85% labeled and 15% unlabeled. Five percent of the instances of CP Aspen's mother also provided a form of physical praise along with her verbal praising. During independent verification, 76% of the CP for Aspen was labeled verbal praise.

Landon's mother issued 75% of CP as labeled praise during baseline and 79% during the intervention phase. One percent of Landon's CP during intervention phase was also physical. During independent verification for Landon 83% was labeled verbal praise. Laney's mother issued 100% of the CP as labeled verbal praise during baseline. During the intervention phase, Laney was given 96% verbal praise (31% labeled and 69% unlabeled); 14% of the CP was physical praise. During independent verification, 10% of Laney's CP was physical praise while the other 90% was broken down into 66% labeled verbal praise and 44% unlabeled verbal praise.

PAQ-R

Table 6 illustrates the raw scores from the PAQ-R for each mother, Pre- and Post-intervention. The mothers of Aspen and Laney rated their parenting style to be more indicative of an Authoritative parenting style both before *and* after the study. Landon's mother rated herself as displaying equal characteristics of both an Authoritarian and an Authoritative parenting style Pre-intervention. At the conclusion of the study, the Authoritarian parenting style had a greater score, which indicates an emphasis towards an Authoritarian parenting style.

PSI-SF

Table 7 displays the raw scores from the PSI-SF Pre- and Post-intervention. Change scores were evaluated based on the criteria determined from the SED. In order

for the change to be significant scores needed to be greater than or equal to the following: Total Stress ≥ 14.46, Parental Distress ≥ 5.09, Parent-Child Dysfunctional Interaction ≥ 7.20, and Difficult Child ≥ 6.43. Based on those criteria, significant decreases were seen in the scores of Laney's mother. According to the scores, the 16-point decrease seen within the Difficult Child domain was significant. Decreases were seen within the other two domains as well, but these differences were not significant. The Total Stress decreased by 24-points from the beginning of the study to the end. A change this large is considered significant. Changes were seen within the scores for Aspen's mother; however, no changes were considered significant. Landon's mother, on the other hand, had one domain show a significant difference. Within the Parent-Child Dysfunctional Interaction domain, her stress increased Pre- and Post-intervention.

Discussion

Several studies have examined Compliance Training, the efficacy of different components, and the effect Compliance Training has on compliance in children; however, no studies have examined the effect of nonverbal gestures, such as body positioning (Benoit et al., 2001; Everett et al., 2005; Ford et al., 2001; Mandal et al., 2000; Olmi et al., 1997, Roberts et al., 2008). The purpose of the current study was to expand upon an unpublished study by Hindman & Johnson-Gros (2010) which modified the body positions (bending over, sitting, and standing) of a teacher, teacher assistant, and parent when issuing a command to a child.

Results of the current study suggest that that the body position of a caregiver when issuing a command, along with components of Compliance Training, may influence the rate of compliance in children. In the current study, data showed that when the mothers of Aspen and Laney issued commands to their children in the kneeling position, higher rates of compliance were attained. Landon initiated greater compliance when commands were issued in bending position. These results are consistent with those observed for Hindman & Johnson-Gros (2010). In their study, the child had higher rates of compliance when the teacher and teacher assistant issued commands in the bending position, while the mother had greater success with the child's compliance when she issued commands in a sitting position.

When examining the body positions during the intervention phase, all three participants complied with the same or fewer commands when their caregivers were in the standing position. For Laney, compliance rates in standing and bending conditions were the same. For Aspen, the bending condition was slightly higher than the standing

condition. There are multiple reasons why standing may not have resulted in the body position with the highest rates of compliance. Standing may be viewed as an aggressive and assertive position. When a caregiver is kneeling or bending, they are more on the child's level and therefore may be viewed as less threatening. In addition, when a person bends or kneels, they are typically doing so within a close proximity to the child. While eye contact was not required during the current study, eye contact is easier to attain when on a child's level and within close proximity; both of which are more readily achieved in a bending or kneeling body position.

This study is consistent with findings from Hindman & Johnson-Gros (2010). It provides further evidence that body positioning, specifically issuing commands in a kneeling or bending position, may further increase compliance when added to Compliance Training components. However, the present study expanded the previous research in several ways.

First, the operational definitions of compliance were more clearly defined and completed compliance was measured rather than just initiated compliance. Completed compliance was examined in addition to the main dependent variable, initiated compliance. When initiated compliance was used, there appeared to be a clear divergence between the kneeling and bending conditions over the standing position. However, there was no divergence in conditions with any participants when using completed compliance as the dependent variable. The bending and kneeling conditions had exactly the same percentages of completed compliance for Landon and Laney; bending was 2% higher for Aspen. The standing condition was lower for Aspen and Landon, but not for Laney. Rates for completed compliance were lower than initiated

compliance in nearly all conditions. It is interesting to note the discrepancies because, it would be assumed that most parents attempt to attain completed compliance rather than initiated compliance, yet studies typically use rates of initiated and/or completed compliance. Compliance rates in previous studies may be inflated depending on how compliance is defined.

A potential reason for the differences between initiated and completed compliance is that compliance is a chain of behaviors which is started with a discriminative stimulus (e.g., body stance) and ends with the last behavior (completed compliance) followed by a reinforce (e.g., contingent praise). The type of body stances may have more salient properties as a discriminative stimulus than others. The current study adds to the literature by separating the two dependent variables, thereby, enhancing the knowledge base of compliance in children. Future research may examine compliance using a forward chaining procedure versus and total task procedure which is typically used to increase completed compliance.

The current study attempted to improve upon the IOA rates by providing better definitions of the components and providing extensive training of the observers. While all components had over 90% IOA, there were some fluctuations between variables. While numerous examples of commands were given, it was impossible to give examples of every type of a command a parent might give. Sometimes, it was difficult for the observers to understand that short commands can be directive without being descriptive and vice-versa. Re-training was completed through modeling and didactic methods to address the discrepancies. In future research, it may be beneficial to provide a more comprehensive list of possible examples.

There are two other issues regarding the operational definitions and inclusion criteria that have not been adequately researched nor is there a firm knowledge base on which are compliance rates and the 5 s wait period. After reviewing normative samples, Forehand (1977) found that typical preschool children comply with 60-80% of the commands issued; however, he reported that when compliance drops below 60%, it is considered significant. In most studies, noncompliance is considered significant when it drops below 40%. The children who are more than 40% compliant, but less than 80% compliant are typically disregarded in the literature. However, it may be advantageous to study these children in the future because to see if they would respond best to components of compliance training without needing to employ TO techniques.

A 5 s wait was used as the time variable in the current study; however there is some inconsistency in the research. It is relatively unclear, due to lack of research, why 5 s was considered the gold standard. Most research studies have used anywhere from 5 s to 15 s for a child to initiate compliance. On numerous occasions in the present study, the children would initiate and follow through with commands; however, it was at the 6 s mark or later and, therefore, coded as no initiation. Future research should examine the exact time in which a child initiates compliance and completes compliance after a command has been issued.

Second, increasing the integrity of the compliance training from the previous research was sought. Percentages of treatment integrity increased for all variables. Specifically, CP was extremely low in previous research (Hindman & Johnson-Gros, 2010). The average rate of CP across the treatment and independent verification phases was 36%. In the current study, while rates of CP fluctuated across conditions, the

integrity improved to 78%, overall. A 5 s wait fluctuated from a mean of 53% to 97% in the previous study (Hindman & Johnson-Gros, 2010). The current study improved upon those averages with caregivers waiting at least 5 s to issue a command during 96% of the conditions. Overall, treatment integrity of the variables was adequate and markedly improved for all variables.

One major limitation of current study was the inconsistent and relatively low rates of CP. Treatment integrity for all variables should have been 80% or greater. For Aspen's mother, when in a standing position during the intervention phase, CP was only issued during 76% of the instances of completed compliance; all other conditions had adequate CP. The only condition with below adequate levels of CP for Landon's mother was the kneeling condition with 74% CP which fluctuated from 0% to 100%. However, the 0% of CP was witnessed during session 17, which was after a seven week lapse in sessions. Landon's mother was retrained on CP after that session; subsequent sessions yielded 80-100% treatment integrity. One difficulty with reaching adequate levels of CP was that, at times, the parents were not aware that the commands they were issuing were considered actual commands.

The greatest discrepancy in CP was seen with Laney's mother. After Laney complied with a command, in the intervention phase, CP was issued in 65% of the bending and standing conditions as well as 75% of the kneeling conditions. During the independent verification phase, while Laney initiated compliance in 97% of the commands and completed compliance in 77% of commands, CP was only issued 43% of the time. However, this did not appear to affect the results given Laney's high rates of compliance. The environment itself appeared to be reinforcing to Laney given that she

had one-on-one time with her mother and had all of her attention. In addition, Laney's mother would issue commands in a way that was almost competitive in fashion; Laney attempted to beat her rate of completion in the tasks she was given. This seemed to be rewarding and reinforcing to Laney.

Third, the types of CP that were used by parents during the study were investigated. Previous compliance training research has typically coded all CP variables together as present or not. The present study improved upon previous research because praise can be given in very different ways and different types of praise may yield different results. The type of praise was not manipulated, but could be in future research. The observers attempted to examine the specific type of praise the parent used: verbal praise, physical praise, or gestural praise.

Due to the low quality of the video recording and the position of the parents (often facing away from the camera), it was impossible to always know whether the parent smiled, made a funny face, or gave some other gestural praise to their child after compliance. Of the three participants, Laney had the highest rates of initiated and completed compliance, overall; however, her mother issued the lowest rates of CP. It is possible that CP was issued gesturally, but due to limitations of equipment, it could not be coded. During conversations with Laney's mother, it was reported that Laney loved working with her mother in the clinic, away from her two sisters. It is also possible that the environment itself was a discriminative stimulus for Laney. During the independent verification phase, Laney was issued commands such as, "Write the letter L" or "Now write a Q." Because Laney was focused on writing each letter, her mother did not praise after each completed letter; she praised at the completion of the task. Parents often

claimed they had not considered those commands. Future studies may consider the use of the bug-in-the-ear device to immediately prompt the parent to praise following completed compliance rather than reminding the parent at the end of the session.

Verbal praise was used in 96% of the instances for all participants while physical praise was only given 6% of the time. Overall, labeled praise was issued 74% of the time. Caregivers sometimes started with an unlabeled praise, which would evolve into a more elaborate labeled praise. Gestural praise was unable to be coded in any case due to the low quality of the video equipment and the fact that the parents often faced away from the camera. Future research could examine if manipulating the type of CP issued would increase compliance rates further.

The variable rates of CP may be an indication as to why the completed compliance did not diverge and/or reach the levels of initiated compliance. Both dependent variables increased after intervention was implemented and in the independent verification phase; however, if you look at compliance as a chain of behaviors, completed compliance is the end behavior, which should be followed by a reinforcer. This may potentially explain some of the differences seen between the two dependent variables as they are uniquely different.

Another limitation in the current study is that there was a delay of seven weeks before Aspen could return for independent verification due to cancellations and scheduling conflicts. For Landon, between session 16 and 17 there was also a delay of seven weeks. No lapses in time were experienced with Laney. While it is not ideal to have breaks in the data, it also showed that compliance levels and most of the skills were maintained with minimal re-teaching.

A non-concurrent multiple baseline design across participants which moved into an ATD during the intervention phases was used in this study. While there are many advantages to this type of design in a single-subject design, it has its limitations. Specifically, clear divergence between the conditions is not based on specific criteria; it is left to the professional judgment of the investigator.

Due to the design of the study, it is impossible to know what, if any, of these results would be effective with other subjects or settings. This is a substantial limitation in all single subject studies; generalization is quite limited, therefore, replication is needed. All parents in the current study were married Caucasian mothers, in their thirties, with at least three children. Future research should diversify its participants further to determine if the findings may be generalized to different types of mothers. Overall, there is a general lack of research using fathers as participants instead of mothers. Expanding the research to include fathers would provide more evidence of Compliance Training's effectiveness across different conditions.

Parenting style classifications were not used as inclusionary criteria, therefore, there may not have been the opportunity to test the hypothesis that parents would move to a more Authoritative parenting style post-intervention; which was the case with the mothers of both Laney and Aspen. Landon's mother rated herself as displaying an equal emphasis in both Authoritative and Authoritarian parenting styles. At the conclusion of the study, she rated herself 5-points higher on the Authoritarian scale. It is impossible to make any conclusion or generalization based on this finding from one participant. Due to the overall poor reliability coefficients for the PAQ-R, a better parenting style classification survey may yield more reliable results. Despite the poor reliability, the

PAQ-R was included in order to facilitate discussion and provide possible support for further evidence of Compliance Training's effectiveness. Future research could collect this information from participants and examine such relationships further.

Only one participant, Laney's mother, showed a significant reduction in both Total Stress and on the Difficult Child domain using the PSI-SF. Elevations above the 85th percentile on any subscale or Total Stress suggest significant stress levels with the parent related to parenting issues (Abidin, 1995). Prior to intervention, the scores of Laney's mother were elevated in three areas: Parent-Child Dysfunctional Interaction, Difficult Child, and Total Stress. After completion of the intervention, no scores were elevated to significant levels. During a conversation with the investigator, Laney's mother reported that she observed nearly instant improvements in Laney's behavior after the first intervention session.

Stress levels for Landon's mother stayed the same on Parental Distress, but increased on Parent-Child Dysfunctional Interaction domain, DC, and Total Stress. The increase in Parent-Child Dysfunctional Interaction was the only statistically significant increase. When PSI-SF scores are found to be in the 90th percentile or greater on Difficult Child or Parent-Child Dysfunctional Interaction domain and the Parental Distress is at or above the 75th percentile, this indicates that the parent is coping with remarkably difficult behavior from his/her child (Abidin, 1995). This was the case for Landon's mother as all scores remained in the clinically significant levels pre- and post-intervention. The Parent-Child Dysfunctional Interaction domain examines the perception that the child does not meet the parent's expectations and that the interactions with his/her child are not reinforcing. It is possible that while an increase in compliance

was observed, his mother still felt that the interactions between them were not reinforcing for her.

The parents of both Aspen and Landon reported improvements in the behavior of their children throughout the course of the study; however, they both expressed that they needed additional guidance on what to do when their child still did comply with commands. The components of Compliance Training are meant to improve a child's behavior before the parents learn and enact discipline techniques. Studies have found that discipline procedures, such as TO, are most effective if conducted after implementation of TI components (Marlow et al., 1997; Ford, et al., 2001; Olmi et al.,1997). In the case of Aspen and Landon, their mothers expressed the need for further assistance on how to deal with noncompliance, tantrums, and dealing with behaviors that cannot be ignored. Further assistance was offered to the parents; however, due to conflicts in schedules, they chose not to participant. Future research should be conducted within a home setting or have a generalization measure to potentially aid in the further development of caregiver skills within the natural environment. Future research may explore the possibility of explicitly teaching TO skills to parents. Parents could also give more commands that they know will specifically induce a temper tantrum in order to allow for provision of feedback in those situations.

Overall, the current study provided further support for the effectiveness of Compliance Training with parents and their children and was shown to increase compliance among the participants. Higher rates of compliance were attained when caregivers issued commands in either the kneeling or bending positions rather than a standing position. For two of the three participants, a kneeling position yielded higher

rates of compliance. No differences were seen pre- and post- intervention in regard to parenting style using the PAQ-R. Decreases in stress levels were experienced with one of the three mothers pre- and post-intervention when using the PSI-SF. Future research may wish to further examine stress levels and parenting styles pre- and post-intervention.

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Table 1

Mean percentages and ranges for initiated compliance

	Baseline		Intervention			Independent Verification		
	M	Range	*M*		Range	*M*		Range
Aspen	33	10-60	50	Standing	40-60	87	Kneeling	80-100
			52	Bending	20-80			
			74	Kneeling	60-90			
Landon	43	0-70	58	Standing	30-70	83	Bending	80-90
			86	Bending	80-90			
			74	Kneeling	60-80			
Laney	40	20-60	76	Standing	70-90	97	Kneeling	90-100
			76	Bending	60-90			
			92	Kneeling	80-100			

Table 2

Mean percentages and ranges for completed compliance

	Baseline		Intervention			Independent Verification		
	M	Range	*M*		Range	*M*		Range
Aspen	18	0-50	42	Standing	30-60	90	Kneeling	80-100
			52	Bending	0-90			
			50	Kneeling	30-70			
Landon	21	0-40	56	Standing	30-80	73	Bending	60-100
			68	Bending	50-80			
			68	Kneeling	40-100			
Laney	40	30-60	86	Standing	80-100	77	Kneeling	60-100
			80	Bending	70-90			
			80	Kneeling	70-90			

Table 3

Mean percentages and ranges for treatment integrity of Aspen's mother

	Aspen's mother							
	Baseline		Intervention			Independent Verification		
	M	Range	*M*		Range	*M*		Range
Directive Statement			88	Standing	70-100			
	10	0-40	86	Bending	70-100	90	Kneeling	80-100
			94	Kneeling	80-100			
Descriptive Wording			94	Standing	80-100			
	57	10-90	96	Bending	80-100	100	Kneeling	100
			96	Kneeling	90-100			
Close Proximity			98	Standing	90-100			
	92	50-100	98	Bending	90-100	100	Kneeling	100
			100	Kneeling	100			
5 s Wait			98	Standing	80-90			
	68	50-80	98	Bending	90-100	100	Kneeling	100
			90	Kneeling	80-100			
Contingent Praise			76	Standing	25-100			
	36	0-50	96	Bending	80-100	93	Kneeling	88-100
			84	Kneeling	67-100			

Table 4

Mean percentages and ranges for treatment integrity of Landon's mother

	Landon's mother							
	Baseline		Intervention			Independent Verification		
	M	Range	*M*		Range	*M*		Range
Directive Statement			96	Standing	90-100			
	39	30-60	84	Bending	70-100	90	Bending	80-100
			88	Kneeling	60-100			
Descriptive Wording			96	Standing	90-100			
	56	30-90	92	Bending	70-100	100	Bending	100
			94	Kneeling	70-100			
Close Proximity			100	Standing	100			
	94	80-100	96	Bending	80-100	100	Bending	100
			100	Kneeling	100			
5 s Wait			98	Standing	90-100			
	56	20-90	96	Bending	80-100	100	Bending	100
			92	Kneeling	80-100			
Contingent Praise			93	Standing	80-100			
	27	0-100	85	Bending	78-100	81	Bending	83-100
			74	Kneeling	0-100			

Table 5

Mean percentages and ranges for treatment integrity of Laney's mother

	Laney's mother							
	Baseline		Intervention			Independent Verification		
	M	Range	*M*		Range	*M*		Range
Directive Statement	20	10-40	90	Standing	80-100	100	Kneeling	100
			88	Bending	70-100			
			84	Kneeling	60-100			
Descriptive Wording	27	10-40	96	Standing	90-100	100	Kneeling	100
			92	Bending	80-100			
			100	Kneeling	100			
Close Proximity	80	60-100	90	Standing	70-100	100	Kneeling	100
			96	Bending	80-100			
			98	Kneeling	90-100			
5 s Wait	70	60-80	98	Standing	90-100	97	Kneeling	90-100
			94	Bending	90-100			
			92	Kneeling	70-100			
Contingent Praise	8	0-33	65	Standing	25-87	43	Kneeling	10-71
			65	Bending	38-75			
			75	Kneeling	50-100			

Table 6

Parent Authority Questionnaire – Revised ; Pre-intervention and Post- intervention raw scores

	PAQ-R Scores			
	Pre-intervention		Post-intervention	
Aspen's mother	Authoritarian	36	Authoritarian	35
	Authoritative	44	Authoritative	43
	Permissive	26	Permissive	20
Landon's mother	Authoritarian	33	Authoritarian	34
	Authoritative	33	Authoritative	29
	Permissive	25	Permissive	19
Laney's mother	Authoritarian	25	Authoritarian	21
	Authoritative	43	Authoritative	44
	Permissive	33	Permissive	30

Table 7

Parenting Stress Index – Short Form scores Pre-intervention and Post-intervention

	PSI-SF			
	Pre- intervention		Post- intervention	
Aspen's mother	Defensive Responding	7*	Defensive Responding	11
	Parental Distress (PD)	12	Parental Distress (PD)	17
	Parent-Child Dysfunctional Interaction (P-CDI)	17	Parent-Child Dysfunctional Interaction (P-CDI)	23
	Difficult Child (DC)	39	Difficult Child (DC)	36
	Total Stress	68	Total Stress	76
Landon's mother	Defensive Responding	17	Defensive Responding	20
	Parental Distress (PD)	30	Parental Distress (PD)	30
	Parent-Child Dysfunctional Interaction (P-CDI)	30	Parent-Child Dysfunctional Interaction (P-CDI)	38
	Difficult Child (DC)	48	Difficult Child (DC)	49
	Total Stress	108	Total Stress	117
Laney's mother	Defensive Responding	19	Defensive Responding	14
	Parental Distress (PD)	29	Parental Distress (PD)	24
	Parent-Child Dysfunctional Interaction (P-CDI)	27	Parent-Child Dysfunctional Interaction (P-CDI)	24
	Difficult Child (DC)	43	Difficult Child (DC)	27
	Total Stress	99	Total Stress	75

Note. *Score of 10 or less on Defensive Responding indicates possible defensive responding.

Table 8

Effect size, SMD_{all}, and Percentage of Nonoverlapping Data Points (PND) classification categories

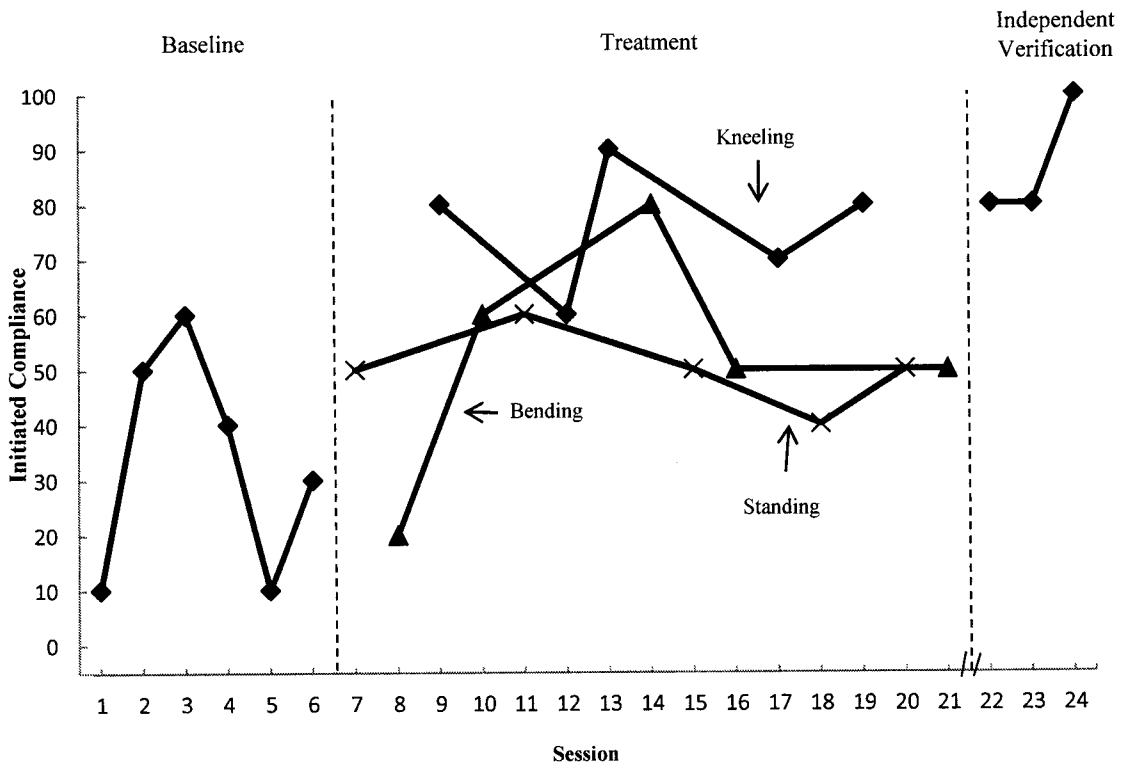
	Effect Size	Effect Size Classification	PND	PND Classification
Aspen's mother				
Intervention				
Standing	0.806	Large	0%	Ineffective Intervention Effect
Bending	0.904	Large	20%	Ineffective Intervention Effect
Kneeling	2.066	Large	80%	Effective Intervention Effect
Independent Verification				
Kneeling	2.582	Large	100%	Very Effective Intervention Effect
Landon's mother				
Intervention				
Standing	0.662	Medium	0%	Ineffective Intervention Effect
Bending	1.885	Large	100%	Very Effective Intervention Effect
Kneeling	1.361	Large	60%	Questionable Intervention Effect
Independent Verification				
Bending	1.769	Large	100%	Very Effective Intervention Effect
Laney's mother				
Intervention				
Standing	1.800	Large	100%	Very Effective Intervention Effect
Bending	1.800	Large	80%	Very Effective Intervention Effect
Kneeling	2.600	Large	100%	Very Effective Intervention Effect
Independent Verification				
Kneeling	2.833	Large	100%	Very Effective Intervention Effect

Table 9

Percentages of Contingent Praise by type

	Contingent Praise Percentages			
	Type of CP	Baseline	Intervention	Independent Verification
Aspen	Verbal	100	100	100
	Labeled	50	85	76
	Unlabeled	50	15	24
	Physical	0	5	0
	Gestural	0	0	0
Landon	Verbal	75	100	100
	Labeled	100	79	83
	Unlabeled	0	21	17
	Physical	25	1	0
	Gestural	0	0	0
Laney	Verbal	100	96	90
	Labeled	100	31	66
	Unlabeled	0	69	44
	Physical	0	14	10
	Gestural	0	0	0

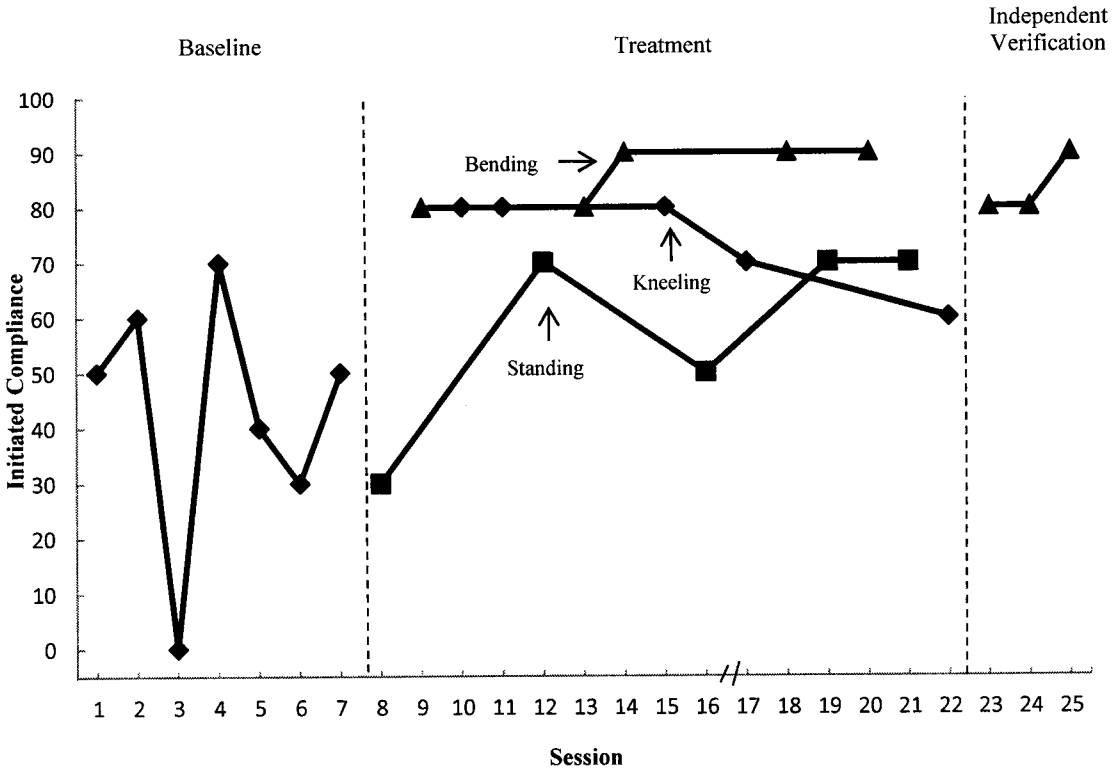
Note. Percentages may not add to 100% due to some overlapping variables



*Hash marks indicate a break in time between intervention and independent verification.

Figure 1

Initiated compliance percentages with Aspen



*Hash marks between sessions 16 and 17 indicate a break in time between sessions

Figure 2

Initiated compliance percentages with Landon

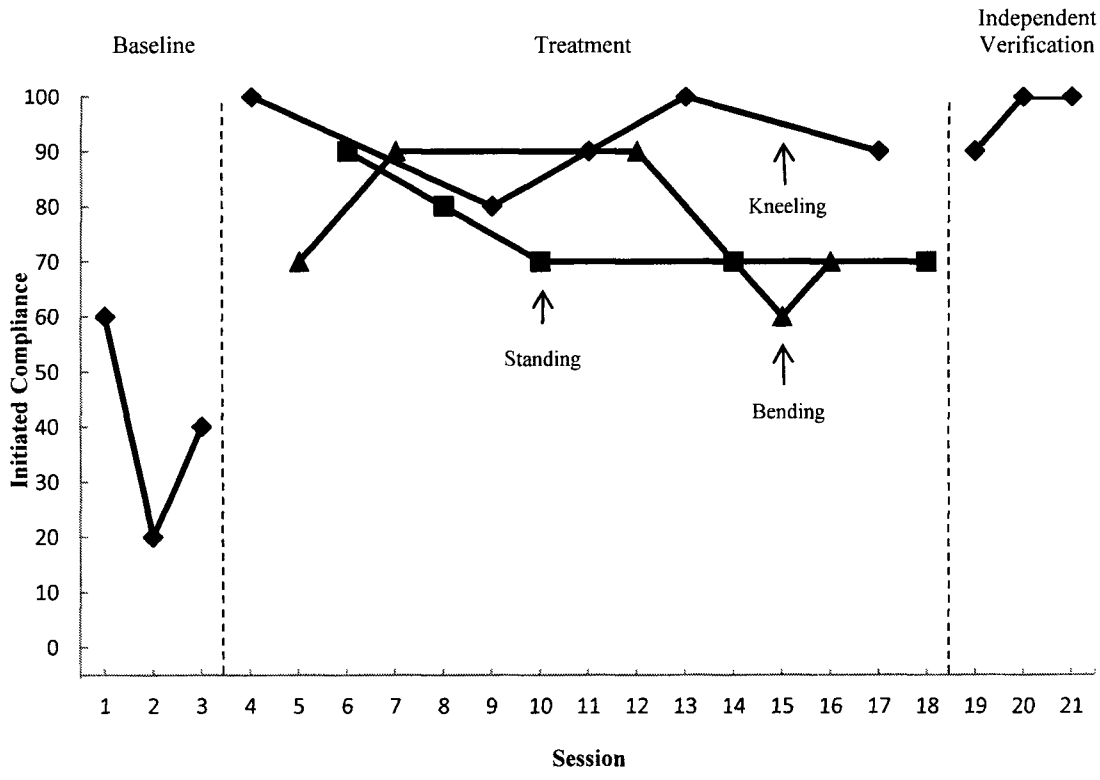


Figure 3

Initiated compliance percentages with Laney

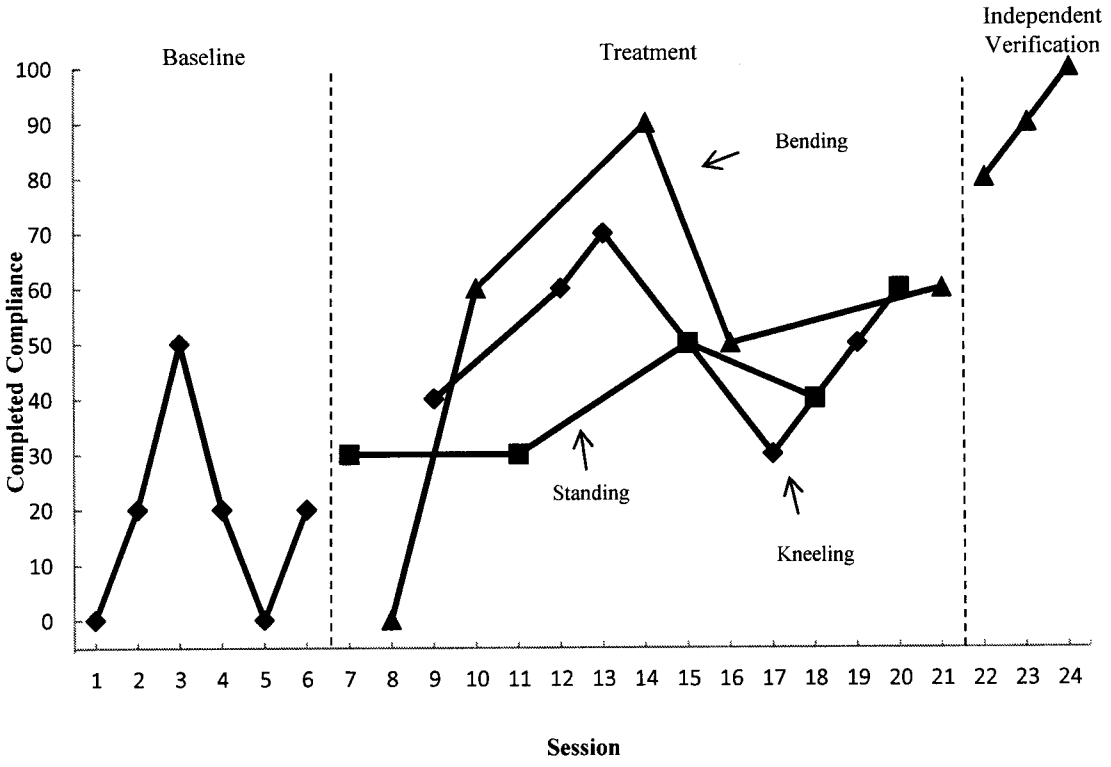
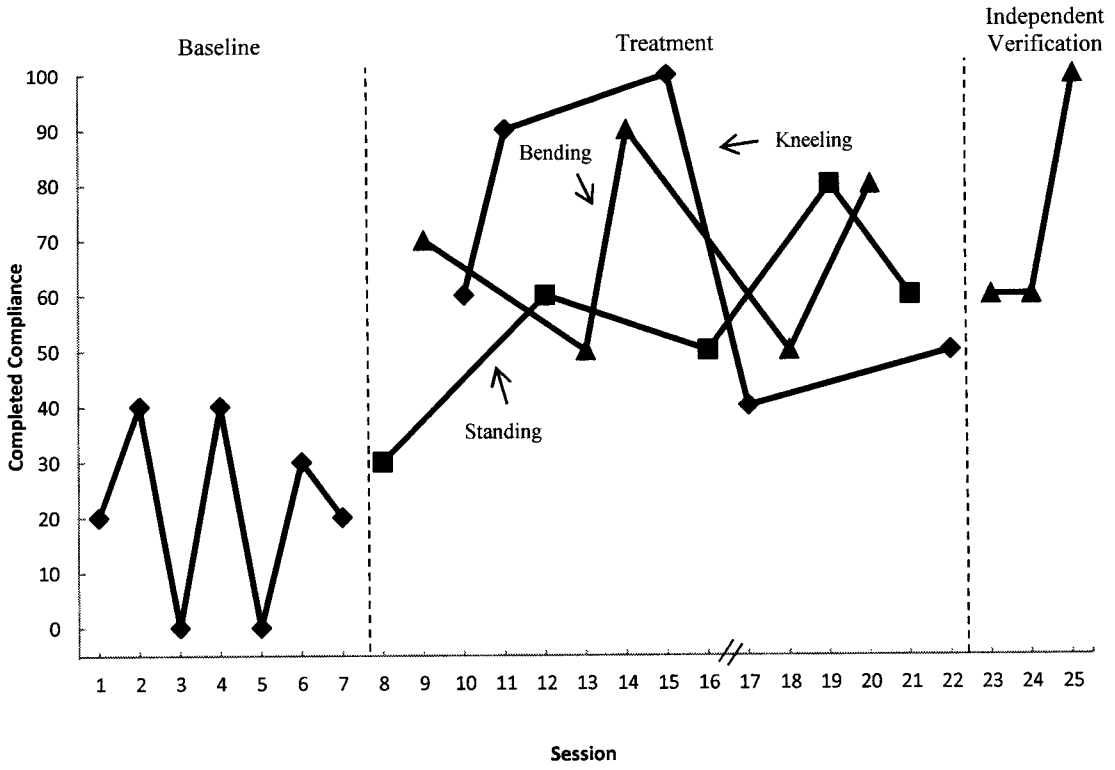


Figure 4

Completed compliance percentages with Aspen



*Hash marks between sessions 16 and 17 indicate a break in time between sessions

Figure 5

Completed compliance percentages with Landon

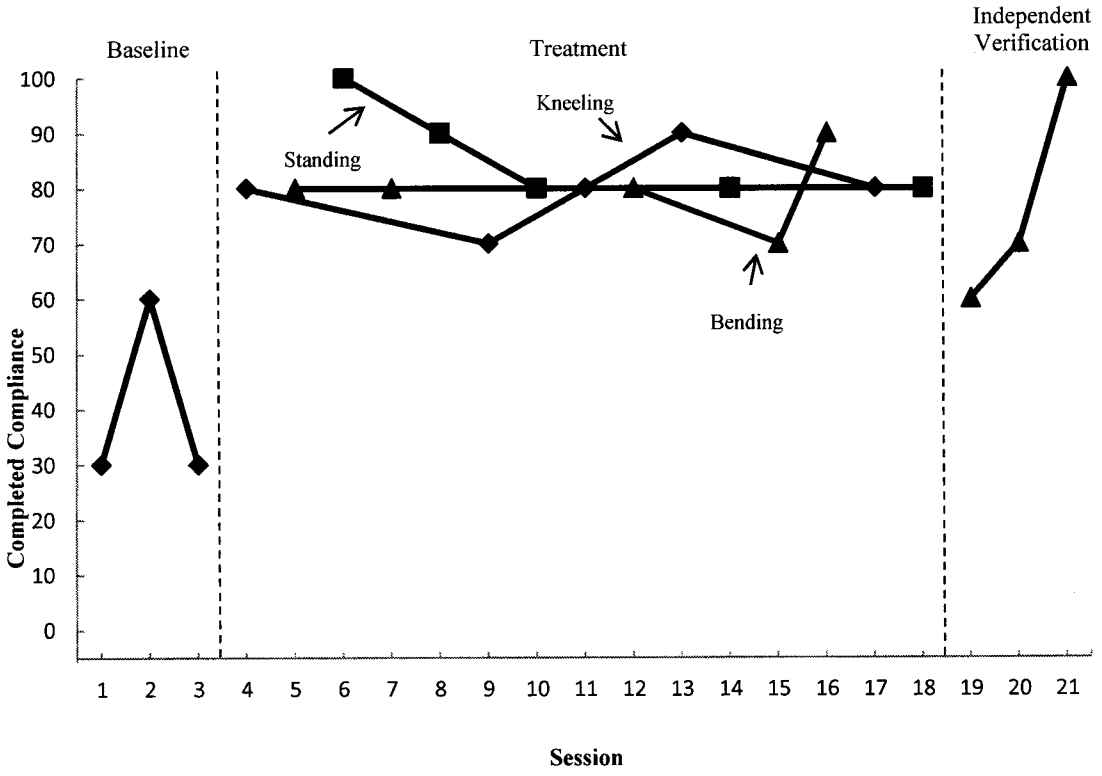


Figure 6

Completed compliance percentages with Laney

Appendix A

Dear Parents,

I am Andrea Delaney a graduate student in the School Psychology Graduate Program at Eastern Illinois University. I am seeking participants in my thesis research project to study compliance in children. You may participate if your child is between three and six years of age and has problems with compliance.

As a participant, you will be asked to bring your child to EIU's School Psychology Clinic once a week for 4-7 weeks. Each session is expected to take approximately thirty minutes to complete; however, the first session may take up to an hour of your time.

There are no foreseeable risks to your child from participation in this study. However, as a potential benefit, it is expected that rates of compliance will increase and valuable skills may be learned through compliance training. The results of this study could help researchers develop improved and effective methods of compliance training that can possibly be applied by parents and teachers in the future. Consent to participate in this study is completely voluntary. If you do not wish to participate in this study, there will be no penalty. You may also choose to withdraw from the study at anytime without penalty. The results of the study may be published, but there will be no identifying information included in this publication. In other words, neither your name nor your child's name will be used.

If you have any questions or are interested in this study, please feel free to contact me at amdelaney@eiu.edu or my thesis chair Dr. Kristin Johnson-Gros at kjohnsongros@eiu.edu or (217) 581-8511. For initial contact, please email for fastest response. If you have any questions about you or your child's rights as a subject/participant in this research or if you feel you or your child have been placed at risk, you can contact the Office of Research and Sponsored Programs at Eastern Illinois University at (217) 581-8453.

Thank you for your consideration,

_____

Andrea Delaney
School Psychology Graduate Student

Appendix B

CONSENT TO PARTICIPATE IN RESEARCH

The Effects of Body Positioning on Compliance among Children

You are invited to participate in a research study conducted by Andrea Delaney and Dr. Kristin Johnson-Gros, from the Psychology Department at Eastern Illinois University.

Your participation in this study is entirely voluntary. Please ask questions about anything you do not understand, before deciding whether or not to participate.

- **PURPOSE OF THE STUDY**

This study is designed to examine whether a caregiver's body positioning when issuing commands has an effect on compliance in children.

- **PROCEDURES**

If you volunteer to participate in this study, you will be asked to:

As a participant, you will be asked to bring your child to EIU's School Psychology Clinic located in the Physical Science building once a week for 4-7 weeks. Each session is expected to take approximately thirty minutes to complete; however, the first session may take up to an hour of your time.

Sessions may be videotaped in order to assess for reliability among researchers and integrity of treatment components. In addition, recordings may be used for educational purposes.

- **POTENTIAL RISKS AND DISCOMFORTS**

As a potential risk, compliance training may be unsuccessful with your child which may cause compliance rates to may remain steady or decrease. In addition, children and parents may experience discomfort at points during compliance training. Discomfort for the child may include becoming irritable at the number of requests. A child may also get upset or throw a tantrum as their behavioral expectations may change. Parents may experience discomfort at the sight of their child's behaviors.

- **POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

As a potential benefit, it is expected that rates of compliance with your child will increase and valuable skills may be learned through compliance training. In addition, through compliance training, it is expected that the relationship between the parent and child should improve.

The results of this study could help researchers develop improved and effective methods of compliance training that can possibly be applied by parents and teachers in the future.

- **CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of keeping data in a locked office at all times. Data will be in possession of the primary investigator and her faculty sponsor. Data will be kept until thesis requirements have been met; however, in the event that this study is published, data will be kept for three years. All names and identifying information will be changed to protect identity of both caregivers and children.

Any video recordings will be used solely for the purpose of establishing treatment integrity and inter-rater agreement issues. It is possible that the tapes will be used for educational purposes in order to train future researchers.

- **PARTICIPATION AND WITHDRAWAL**

Participation in this research study is voluntary and not a requirement or a condition for being the recipient of benefits or services from Eastern Illinois University or any other organization sponsoring the research project. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind or loss of benefits or services to which you are otherwise entitled.

- **IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about this research, please contact:
The principal investigator, Andrea Delaney at amdelaney@eiu.edu or the faculty sponsor, Dr. Kristin Johnson-Gros, at kjohnsongros@eiu.edu or (217) 581-8511.

- **RIGHTS OF RESEARCH SUBJECTS**

If you have any questions or concerns about the treatment of human participants in this study, you may call or write:

Institutional Review Board
Eastern Illinois University
600 Lincoln Ave.
Charleston, IL 61920
Telephone: (217) 581-8576
E-mail: eiuirb@www.eiu.edu

You will be given the opportunity to discuss any questions about your rights as a research subject with a member of the IRB. The IRB is an independent committee composed of members of the University community, as well as lay members of the community not connected with EIU. The IRB has reviewed and approved this study.

I voluntarily agree to participate in this study. I understand that I am free to withdraw my consent and discontinue my participation at any time. I have been given a copy of this form.

_____
Printed Name of Participant

_____ _____
Signature of Participant Date

I hereby consent to the participation of _____, a minor/subject in the investigation herein described. I understand that I am free to withdraw my consent and discontinue my child's participation at any time.

_____ _____
Signature of Minor Subject's Parent or Guardian Date

I, the undersigned, have defined and fully explained the investigation to the above subject.

_____ _____
Signature of Investigator Date

Appendix C

EID CHECKLIST FOR PARENT TRAINING SESSION

Participant: _____ **Observer:** _____

Date/Session: _____ **Phase:** _____

Command One:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

Command Two:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

Command Three:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

Command Four:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

Command Five:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

Command Six:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

Command Seven:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

Command Eight:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

Command Nine:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

Command Ten:

_____Directive Statement _____Close Proximity _____Initiated Compliance

_____Descriptive Wording _____5s Wait _____Completed Compliance

( ) Standing ( ) Bending ( ) Kneeling _____Contingent Praise

Verbal Physical Gesture

L U

	Total	**Percentage**
Directive Statement:	_____	_____
Close Proximity:	_____	_____
Descriptive Wording:	_____	_____
5s wait period:	_____	_____
Completed Compliance:	_____	_____
Initiated Compliance:	_____	_____
Contingent Praise:	_____	_____
Verbal:	_____	_____
Labeled:	_____	_____
Unlabeled:	_____	_____
Physical:	_____	_____
Gesture:	_____	_____
Standing	_____	_____
Bending	_____	_____
Kneeling	_____	_____

Appendix D

Training Form
EFFECTIVE INSTRUCTION DELIVERY

What is Effective Instruction Delivery (EID)?
A way to give commands that makes it more likely that children will do what you ask them to do.

Steps in EID

•Deliver instructions as **directives.**
- •Tell the child what to do rather than asking him to comply.
- •Giving commands in the form of a question allows children to test the limits.

- •Example: "Sally, put your teddy bear in your toy box."
- •Non-example: "Sally, will you put your teddy bear away please?"

- •Example: "Blake, put the car in the toy box."
- •Non-Example: "Let's clean up now, okay?"

•Deliver instructions in **close proximity** (within 3 feet).
- •Avoid yelling commands across the room.
- •Giving commands across the room leads to ambiguity regarding the target of the command.
- •Giving commands from a large distance from the child also gives her an opportunity to pretend not to hear!

•Give a **5 second wait** period before reissuing the command or delivering consequences for noncompliance.
- •Allow the child the opportunity to comply.

•Be **descriptive** in the instruction.
- •Make sure your expectations for the child are clear.

- •Example: "Kristin, get down from the bookshelf."
- •Non-Example: "Be careful!"

- •Example: "Timmy, put the blocks in the red container."
- •Non-example: "Timmy, put your toys away."

•**Positive praise** based on following command
- •Praise child either verbally or nonverbally when a command has been followed

- •Example: "Good job," "Way to go," "Thank you for listening!"
- •Non-Example: "Pick up crayons"

- •Example: Thumbs up, pat on the back, smile, hug, high five, fist bump
- •Non-Example: Pointing to the next task

Additional Recommendations:

•Use more **"start" requests** than "stop" requests.
- •Be sure to tell children what TO DO rather than just what NOT to do.

- •Example: "Trent, draw a picture with that crayon."
- •Non-example: "Get that crayon out of your nose!"

•Break complex commands down; **avoid compound requests**.
- •Commands should be given one at a time.

- •Example: "Sarah, go wash your hands."
- •Non-Example: "Go to the bathroom and wash your hands, brush your teeth, and comb your hair."

- •Example: "Sam, put your legos in the box."
- •Non-Example: "Clean your room."

•Be matter-of-fact and **non-emotional** when addressing problem behavior.

•Use a **quiet-toned, neutral voice.**
- •Example: "Jenna, come and sit in the circle with the group."
- •Non-Example: "COME HERE NOW!"

References

Hembree-Kigin, T. L., & McNeil, C. B. (1995). *Parent-child interaction therapy.* Plenum Press: New York.

Olmi, D. J. (1998). *Bratty kid syndrome.* University of Southern Mississippi.